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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/032,586	12/21/2001	Michael G. Vrazel	07982.105010	9197
7590	12/20/2005			EXAMINER JEANGLAUME, JEAN BRUNER
A. Shane Nichols, Esq. KING & SPALDING 45th Floor 191 Peachtree Street, N.E. Atlanta, GA 30303			ART UNIT 2819	PAPER NUMBER

DATE MAILED: 12/20/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

ETC

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/032,586	VRAZEL ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Jean B. Jeanglaude	2819	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on amendment filed on 10-13-05.
- 2a) This action is FINAL.                    2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 1-36 and 48-61 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) Claim(s) 1-36 is/are allowed.
- 6) Claim(s) 48-57, 59 and 60 is/are rejected.
- 7) Claim(s) 58 and 61 is/are objected to.
- 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on 21 December 2001 is/are: a) accepted or b) objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) All    b) Some \* c) None of:
  1. Certified copies of the priority documents have been received.
  2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | Paper No(s)/Mail Date. _____.   |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>multiple dates</u> . | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
|   | 6) <input type="checkbox"/> Other: _____.                                   |

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 48 - 50, 52, 53, 57, 59 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wojtunik (US Patent Number 6,211,978) in view of Yang et al. (US Patent Number 6,317,247).

3. Regarding claims 48, 56, 57, 59, Wojtunik discloses a method for increasing the channel data rate throughput in an optical fiber communication system (figs. 1 – 7), the method comprising the steps of: receiving a digital input signal (the input signal in figs. 1 – 7), comprising a series of input pulses, each input pulse having one of two pulse levels (figs. 1 – 7); creating a digital input word having n bits from the digital input signal (the input signal is a digital word that is created)(col. 3, lines 25 – 35); converting each digital input word to a corresponding output symbol having one of  $2^n$  distinct values (col. 3, lines 25 – 35; figs. 1 - 7) [the system disclosed in figs. 1 – 7 receives a digital input signal, thereby Wojtunik inherently comprises a DAC that converts the digital input signal into analog signal]; generating an output signal comprising a series of output symbols (figs. 1 - 7)[the system disclosed in figs. 1 – 7 receives a digital input signal, thereby Wojtunik inherently comprises a DAC that converts the digital input signal into analog signal]; using the optical source to transmit the output signal (figs. 1 –

7)[Wojtunik's system is using the optical transmitters to transmit the output signal]. Also, Wojtunik discloses a method (figs. 1 – 7) wherein a drive voltage controls optical source (figs. 1 – 7)[it is inherent that the optical is controlled or adjusted by a voltage]. Wojtunik does not specifically disclose a method that adds a signal dependent bias to the output signal so that a linear response is generated in the optical source. However, Yang et al., in a related field, discloses a method (fig. 2) wherein an adder (12) adds a signal dependent bias to the output signal so that a linear response is generated in the optical source (paragraph bridging between col. 1 and 2). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Wojtunik's system with that of Yang et al. in order to provide a bias voltage stabilization for an electricity-optical modulator based on an off-level sampling. The combination of Wojtunik and Yang et al. will achieve the same end result as the claimed invention.

4. Regarding claim 49, Wojtunik discloses a method wherein the digital input signal is received from  $n$  separate channels, the output signal having  $n$  times higher data rate than that of one of the  $n$  separate channels (figs. 1 – 7)[note the digital input are received at separate channel].

5. Regarding claim 50, Wojtunik discloses a method (figs. 1 – 7) wherein the digital input signal is received from a single channel (figs. 1 – 7).

6. Regarding claims 52, 53, Wojtunik discloses a method (figs. 1- 7) wherein a drive current controls the optical source (figs. 1- 7)[it is noted in Wojtunik's system that there are optical receivers in which drivers are located and it is inherent that the receivers comprises laser diode].

7. Regarding claim 56, Wojtunik discloses a method (figs. 1- 7) wherein the laser diode is a nonlinear optical modulator (figs. 1 – 7).

8. Regarding claims 51, 53, 55, both Wojtunik and Yang et al. do not specifically disclose a method wherein error correction coding is applied to the input data (claim 51); a method the step of adding a signal dependent bias comprises changing the drive current associated with the output signal by an error current (claim 53) and a method wherein a nonlinear element is used to shunt an error current from the drive current (claim 55). However, one ordinary in the art would recognize that an error correction coding as “**a coding system** that incorporates **extra parity bits in order to detect errors**”. Wojtunik utilizes a digital data as input in his system which comprises bits. In utilizing bits as the input, an artisan in the art would understand that one would implement an error correction coding in this system to eliminate error in this system. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made that Wojtunik and Yang et al.’s system would perform the same function as the claimed invention and would achieve the same end result – increase data throughout in optical fiber transmission systems.

9. Claim 60 is rejected under 35 U.S.C. 103(a) as being unpatentable over Wojtunik (US Patent Number 6,211,978) in view of Yang et al. (US Patent Number 6,317,247) as applied to claims 48, 52 above, and further in view of Aina et al. (USPGPUB 2001/0024542).

10. Regarding claim 60, Wojtunik in combination with Yang et al. discloses all the limitations as discussed above except the method wherein the drive controls a Mach-

Zehnder modulator. However, Aina et al., in a related field, discloses a method wherein a drive controls a Mach-Zehnder modulator (paragraph 0072). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Wojtunik and Yang et al.'s system with that of Aina et al.'s system in order to add and drop optical channels in an optical transmission system in which multi-channel optical signal is transmitted into an optical fiber line.

#### Allowable Subject Matter

11. Claims 1 – 36 are allowable.
12. Claims 58, 61 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.
13. Reasons for allowing these claims will be provided in the next office action.

#### Conclusion

14. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. (See PTO-892).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jean B. Jeanglaude whose telephone number is 571-272-1804. The examiner can normally be reached on Monday - Friday 7:30 A. M. - 5:00 P.M..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rexford Barnie can be reached on 571-272-7492. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

*Jean Bruner Jeanglaude*

Jean Bruner Jeanglaude  
Primary Examiner  
December 15, 2005